Elm Borer

Extensive mining loosens bark

Name and Description—*Saperda tridentata* Olivier [Coleoptera: Cerambycidae]

The elm borer is a common wood borer of North American elms. The adult beetle is 1/3-2/3 inch (8-17 mm) long with three orange-red oblique crossbars on the wing covers and narrow stripes on the margins of the wing covers and pronotum (body segment behind the head). Three sets of two black spots occur on the pronotum, at the base of the wing covers, and near the apex of the wing covers (fig. 1). Mature larvae are white, legless, and approximately 1/2-1 inch (13-25 mm) long.

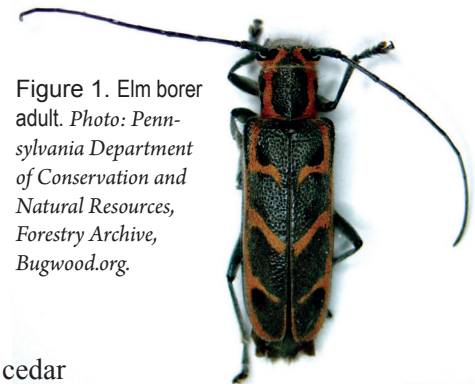

Figure 1. Elm borer adult. *Photo: Pennsylvania Department of Conservation and Natural Resources, Forestry Archive, Bugwood.org.*

Hosts—American elm is the favored species, although slippery elm and cedar elm are hosts. The elm borer probably attacks other native elm species, but this beetle does not infest English elm, an introduced species.

Life Cycle—The elm borer has one generation per year. Adults appear in spring, with the males emerging slightly before females. The beetles mate and then feed extensively on foliage, petioles, and young twigs. At night, females carve out niches in the bark of host trees and deposit their eggs. After hatching, the larvae feed initially in the outer corky layer of bark and later move to the phloem layer, creating extensive galleries (fig. 2). In early August into October, larvae bore into the sapwood and create chambers in the woody tissue of the tree where they overwinter. In March and April, the larvae pupate, which requires 15-33 days. Adults emerge through a round exit hole (fig. 3) following pupation.

Figure 2. Elm borer larvae and galleries. *Photo: James Solomon, USDA Forest Service, Bugwood.org.*

Damage—Fresh sappy wood of trees weakened from drought, disease, or other causes are favored by ovipositing beetles. The first sign of attack is the appearance of thin, light-colored foliage followed by scattered dying of branches. Inspection of the trunk and branches reveals small egg niches in the bark. Within a few days, small pieces or ribbons of reddish frass are extruded from tiny openings in bark crevices. After attack has progressed, patches of the bark may be easily pulled from the tree. Removing the bark reveals a mass of mines or burrows in the inner bark. After a brood completes development, numerous round holes, about 1/8 inch (3 mm) in diameter, are present on the surface of the bark. Larvae penetrate the wood only to pupate, doing so at depths of 1/8-1/4 inch (3-6 mm).

Figure 3. Elm borer emergence hole. *Photo: James Solomon, USDA Forest Service, Bugwood.org.*

Management—Because trees weakened by drought, mechanical damage, air pollution, disease, and insect defoliators are especially susceptible to attack, practices should be followed to keep trees vigorous. Severely infested trees should be removed and destroyed to reduce the borer population. Six species of wasp parasitoids help to reduce infestations but often do not prevent economic damage.

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1. Solomon, J.D. 1995. Guide to insect borers in North American broadleaf trees and shrubs. Agricultural Handbook 706. Washington, DC: U.S. Department of Agriculture, Forest Service. 747 p. Online: http://www.forestpests.org/borers.